REMARKS

In the Office Action dated May 17, 2004, claims 3 and 4 were rejected under Section 112, second paragraph as being indefinite because the Examiner stated the limitation in claim 3 of "...said plurality of trapezoidal transfer functions.." did not have antecedent basis. This rejection is respectfully traversed, because claim 3 depends from claim 2, and antecedent basis for this phrase is present in claim 2. No amendment of claim 3 is seen to be necessary.

Claims 1-3 and 5-9 were rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 6,701,000 (Hsieh) in view of an article by König et al entitled "Mastering Transfer Function Specification by Using VolumePro Technology."

No rejection of claim 4 on the merits was made, nor was there any statement that claim 4 would be allowable if rewritten in independent form and if the aforementioned rejection under Section 112 were overcome.

The above rejection of claims 1-3 and 5-9 is respectfully traversed for the following reasons.

The Examiner acknowledged that the Hsieh reference does not explicitly disclose an image system connected to the computer thereof for generating image signals according to an algorithm employing a trapezoidal transfer function as set forth in claim 1, but relied on the König et al reference as providing such teachings.

In the subject matter of claim 1, the graphics display presents a symbolic trapezoidal transfer function having a number of input fields associated therewith. A user can make respective entries in these input fields associated with the symbolic transfer function, and thereby configure, customize or design the actual trapezoidal

transfer function that is used in the algorithm that assigns at least one optical property to the respective gray scale values. The symbolic representation of the transfer function includes an unchanging trapezoid, but the respective input fields are positioned relative to this trapezoid so that the user is provided with a simple visualization of the characteristic of the trapezoid that each input field represents. When a user makes an entry into one or more of these input fields, the symbolic trapezoidal transfer function itself does not change, but the actual trapezoidal transfer function (that is also displayed) that is actually used in the algorithm does change on the display, and the user can see this change so that the user can make further modifications via the input fields, as needed.

Claim 1 has been amended to clarify the distinction between the algorithmic trapezoidal transfer function, which is the transfer function that is actually used in the algorithm to assign an optical property to the gray scale values, and the symbolic transfer function, which is unchanging (although the respective input fields, of course, can be changed by making entries therein). As stated above, making entries in these input fields does not change the appearance of the symbolic trapezoidal transfer function, but does change the appearance of the algorithmic trapezoidal transfer function, that is also displayed.

Claim 1 also has been amended to use the word "set" instead of "select" to describe the effect that making entries into the input fields has on the algorithmic transfer function. These entries may actually result in one of a number of stored trapezoidal transfer functions being selected (dependent claims 2 and 3), but it is also possible to designate points, or values of points, to customize the shape of the

algorithmic transfer function (claim 5). Usage of the word "set" in claim 1 is better suited for generically encompassing both alternatives.

The König et al article is concerned with a similar problem as the subject matter disclosed and claimed in the present application, namely providing a graphics display that allows a user to designate an appropriate trapezoidal transfer function for assigning optical properties to gray scale values in an image. The König et al reference, however, is evidence of the non-obviousness of the subject matter disclosed and claimed in the present application, rather than evidence of obviousness, because the König et al reference discloses a number of different alternatives for accomplishing this result, none of which correspond to the subject matter disclosed and claimed in the present application. The König et al reference, therefore, is evidence of efforts by those of ordinary skill in the same field working to solve the same problem, but devising different solutions. In view of the number of different alternatives that are described in the König et al reference, it can be assumed that if a further technique, corresponding to the subject matter disclosed and claimed in the present application, had occurred to the authors in the König et al article, such a technique most certainly would have been included among the alternatives in the König et al article. The fact that a trapezoidal selection technique as disclosed and claimed in the present application is not present in the König et al article is evidence of the non-obviousness of the disclosed and claimed technique.

As the Examiner has noted, the display described in the König et al reference presents a representation of a particular trapezoidal transfer function shape within the display bar, as shown in Figure 4 of the article. None of the various uses that can be made of this representation, however, correspond to the language of claim 1 of the

present application. The various alternatives are set forth in the bullet points in the left column at page 4 of the König et al article. In none of these alternatives, is the user presented with two displays of the trapezoidal transfer function, one being the aforementioned symbolic trapezoidal transfer function, which itself is unchanging, and the other being the set algorithmic trapezoidal transfer function, which changes according to entries made by the user.

The various possibilities for selection or adjustment of the trapezoidal transfer function in the display described in the König et al reference are as follows.

In the "accept a suggestion" alternative disclosed in König et al, the user simply accepts a proposed shape, and the effect thereof on the images can be seen on the display, but no trapezoidal shape, other than the suggested and accepted shape, is displayed.

In the "modify a suggestion" alternative, the user can operate the mouse to modify one of the suggested shapes, however, if this alternative is used, the actual displayed suggestion is modified, and the displayed suggestion in its original form is no longer displayed. If the suggested trapezoid is considered to be a symbolic representation of a trapezoidal transfer function, this is not an "unchanging" symbolic representation, as set forth in claim 1.

The "use standard values" alternative is similar to the "accept a suggestion" alternative, accept that the "standard values" can be set according to the imaging modality that is employed to generate the data (CT or MR, for example). Again, however, there is no display of a symbolic trapezoidal transfer function as well as the actual algorithmic trapezoidal transfer function that is employed.

In the "numerical specification" alternative, the user is permitted to enter numerical values that set different properties of the trapezoidal shape, such as the center and width or the slope, but there is no indication in the König et al reference that if these numerical values are entered, that any displayed trapezoidal shape actually changes. Even if this were the case, however, this would be similar to the "modify a suggestion" alternative, wherein entries of the numerical values change the single displayed trapezoidal shape, and moreover this would not be an unchanging trapezoidal shape.

Therefore, although König et al described a number of different alternatives for accomplishing a result similar to that accomplished in the subject matter of the present application, none of those alternatives correspond to the language of claim 1. Therefore, even if the Hsieh reference were modified in accordance with the teachings of König et al, a diagnostic device as set forth in claim 1 and the claims depending therefrom still would not result. The subject matter of claims 1-3 and 5-9, therefore, would not have been obvious to a person of ordinary skill in the field of graphics design for imaging systems under the provisions of 35 U.S.C. §103(a), based on the teachings of Hsieh and König et al.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

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